

CLAIMS

I claim:

1. A catapult device for hurling objects towards a target comprising:
a support structure;
a pivot bracket pivotally mounted on the support structure and
provided with a bearing arrangement;
5 a lever arm pivotally connected to the support structure and engageable
with the pivot bracket;
a spring-biased, motion translation arrangement coupled to the lever
arm and engageable with the bearing arrangement on the pivot bracket; and
a pivot arm pivotally secured to the support structure and the motion
10 translation arrangement, the pivot arm being provided with a receiver for holding an
object to be hurled,
whereby pivotal movement of the lever arm develops a spring force in
the motion translation arrangement and enables the pivot bracket to pivot such that
the motion translation arrangement moves along the bearing arrangement and
15 releases the spring force causing the pivot arm to swing and hurl the object.
2. The catapult device of claim 1, wherein the support structure includes a
pair of parallel support panels held separated from each other by a spacer structure.
3. The catapult device of claim 1, wherein the pivot bracket includes a
first adjustable stop for limiting movement of the lever arm in a first direction.
4. The catapult device of claim 2, wherein the pivot bracket includes a
pair of parallel sideplates mounted externally of the support panels.
5. The catapult device of claim 1, wherein the pivot bracket is provided
with an end block for mounting the bearing arrangement.

6. The catapult device of claim 1, wherein the bearing arrangement is comprised of a set of ball bearings.

7. The catapult device of claim 4, wherein the lever arm is mounted for pivotal movement between the support panels and the sideplates.

8. The catapult device of claim 2, wherein the lever arm is engageable with a second adjustable stop mounted between the support panels for limiting movement of the lever arm in a second direction.

9. The catapult device of claim 1, wherein the motion translation arrangement includes

5 a spring retainer having parallel sidewalls, an intermediate endwall and a closed endwall spaced from the intermediate endwall, the spring retainer defining a spring cavity therein;

a trigger rod extending between the lever arm and the spring retainer and received in the spring cavity, the trigger rod having an enlarged end located in the spring cavity and an opposite connection end pivotally joined to the lever arm; and

10 a compression spring surrounding the trigger rod and extending between the enlarged end of the trigger rod and the closed endwall of the spring retainer.

10. The catapult device of claim 9, wherein the closed endwall is engageable with the bearing arrangement on the pivot bracket.

11. The catapult device of claim 9, wherein the trigger rod runs beneath the bearing arrangement.

12. The catapult device of claim 9, wherein the compression spring is compressible between the enlarged end of the trigger rod and the closed endwall of the spring retainer as the lever arm is moved to define the spring force.

13. The catapult device of claim 9, wherein an end of the spring retainer opposite the closed endwall is pivotally attached to the pivot arm.

14. The catapult device of claim 1, wherein a first return spring is attached between the lever arm and the support structure.

15. The catapult device of claim 1, wherein a second return spring is attached between the pivot bracket and the support structure.

16. The catapult device of claim 1, wherein a locking rod is selectively engaged with the support structure to prevent movement of the lever arm.

17. A catapult device for hurling objects towards a target comprising:
a support structure;

a pivot bracket pivotally mounted on the support structure and provided with a bearing arrangement;

5 a lever arm pivotally connected to the support structure between a rest position and an operating position, the lever arm being engageable with the pivot bracket;

a spring retainer having parallel sidewalls with an open end, a closed endwall spaced from the open end and an intermediate endwall between the open end and the
10 closed endwall, the closed endwall being engageable with the bearing arrangement, the spring retainer defining a spring cavity therein;

a trigger rod extending between the lever arm and the spring retainer and received in the spring cavity, the trigger rod having an enlarged end located in the spring cavity and an opposite connection end pivotally joined to the lever arm;

- 15 a compression spring surrounding the trigger rod and extending between the enlarged end of the trigger rod and the closed endwall of the spring retainer; and
- a pivot arm pivotally secured to the support structure and to the open end of the spring retainer, the pivot arm having a receiver for holding an object to be hurled.

18. The catapult device of claim 17, including a return spring arrangement connected between the support structure and the lever arm, and between the support structure and the pivot bracket.

19. The catapult device of claim 18, wherein the return spring arrangement includes an adjustment device.

20. The catapult device of claim 17, wherein a solenoid assembly is attached to the support structure and includes a locking rod for preventing movement of the lever arm from the rest position.